SEQUENCE LISTING

<110> Poustka, Annemarie
Coy, Johannes

<120> Modularly Constructed RNA Molecules Having Two Sequence Region Types

<130> 012627-019

<140> US 09/720,215
<141> 2000-12-22

<150> PCT/DE99/01867
<151> 1999-06-25

<150> DE 198 28 624.4
<151> 1998-06-26

<160> 8

<170> PatentIn version 3.0

<210> 1
<211> 8422
<212> DNA
<213> Human

<400> 1
cttagagttt cgtggcttca gggtgggagt agttggagca ttggggatgt ttttcttacc 60

gacaagcaca gtcaggttga agacctaacc agggccagaa gtagctttgc acttttctaa 120

actaggctcc ttcaacaagg cttgctgcag atactactga ccagacaagc tgttgaccag 180

gcacctcccc tcccgcccaa acctttcccc catgtggtcg ttagagacag agcgacagag 240

cagttgagag gacactcccg ttttcggtgc catcagtgcc ccgtctacag ctcccccagc 300

tccccccacc tcccccactc ccaaccacgt tgggacaggg aggtgtgagg caggagagac 360

agttggattc tttagagaag atggatatga ccagtggcta tggcctgtgc gatcccaccc 420

gtggtggctc aagtctggcc ccacaccagc cccaatccaa aactggcaag gacgcttcac 480

aggacaggaa agtggcacct gtctgctcca gctctggcat ggctaggagg ggggagtccc 540

ttgaactact gggtgtagac tggcctgaac cacaggagag gatggcccag ggtgaggtgg 600

catggtccat tctcaaggga cgtcctccaa cgggtggcgc tagaggccat ggaggcagta 660

ggacaaggtg caggcaggct ggcctggggt caggccgggc agagcacagc ggggtgagag 720

ggattcctaa tcactcagag cagtctgtga cttagtggac aggggagggg gcaaaggggg 780

aggagaagaa aatgttcttc cagttacttt ccaattctcc tttagggaca gcttagaatt 840

atttgcacta ttgagtcttc atgttcccac ttcaaaacaa acagatgctc tgagagcaaa 900

ctggcttgaa ttggtgacat ttagtccctc aagccaccag atgtgacagt gttgagaact 960

acctggattt gtatatatac ctgcgcttgt tttaaagtgg gctcagcaca tagggttccc 1020

acgaagctcc gaaactctaa gtgtttgctg caattttata aggacttcct gattggtttc 1080

tcttctcccc ttccatttct gccttttgtt catttcatcc tttcacttct ttcccttcct 1140

ccgtcctcct ccttcctagt tcatcccttc tcttccaggc agccgcggtg cccaaccaca 1200

cttgtcggct ccagtcccca gaactctgcc tgccctttgt cctcctgctg ccagtaccag 1260

ccccaccctg ttttgagccc tgaggaggcc ttgggctctg ctgagtccaa cctggcctgt 1320

ctgtgaagag caagagagca gcaaggtctt gctctcctag gtagcccccc cttccctggt 1380

aagaaaaagc aaaaggcatt tcccaccctg aacaacgagc cttttcaccc ttctactcta 1440

gagaagtgga ctggaggagc tgggcccgat ttggtagttg aggaaagcac agaggcctcc 1500

tgtggcctgc cagtcatcga gtggcccaac aggggctcca tgccagccga ccttgacctc 1560

actcagaagt ccagagtcta gcgtagtgca gcagggcagt agcggtacca atgcagaact 1620

cccaagaccc gagctgggac cagtacctgg gtccccagcc cttcctctgc tccccctttt 1680

ccctcggagt tcttcttgaa tggcaatgtt ttgcttttgc tcgatgcaga caggggggca 1740

gaacaccaca catttcactg tctgtctggt ccatagctgt ggtgtagggg cttagaggca 1800

tgggcttgct gtgggttttt aattgatcag ttttcatgtg ggatcccatc tttttaacct 1860

ctgttcagga agtccttatc tagctgcata tcttcatcat attggtatat ccttttctgt 1920

gtttacagag atgtctctta tatctaaatc tgtccaactg agaagtacct tatcaaagta 1980

gcaaatgaga cagcagtctt atgcttccag aaacacccac aggcatgtcc catgtgagct 2040

gctgccatga actgtcaagt gtgtgttgtc ttgtgtattt cagttattgt ccctggcttc 2100

cttactatgg tgtaatcatg aaggagtgaa acatcataga aactgtctag cacttccttg 2160

ccagtcttta gtgatcagga accatagttg acagttccaa tcagtagctt aagaaaaaac 2220

cgtgtttgtc tcttctggaa tggttagaag tgagggagtt tgccccgttc tgtttgtaga 2280

gtctcatagt tggactttct agcatatatg tgtccatttc cttatgctgt aaaagcaagt 2340

cctgcaacca aactcccatc agcccaatcc ctgatccctg atcccttcca cctgctctgc 2400

tgatgacccc cccagcttca cttctgactc ttccccagga agggaagggg ggtcagaaga 2460

gagggtgagt cctccagaac tcttcctcca aggacagaag gctcctgccc ccatagtggc 2520

ctcgaactcc tggcactacc aaaggacact tatccacgag agcgcagcat ccgaccaggt 2580

tgtcactgag aagatgttta ttttggtcag ttgggttttt atgtattata cttagtcaaa 2640

tgtaatgtgg cttctggaat cattgtccag agctgcttcc ccgtcacctg ggcgtcatct 2700

ggtcctggta agaggagtgc gtggcccacc aggcccccct gtcacccatg acagttcatt 2760

cagggccgat ggggcagtcg tggttgggaa cacagcattt caagcgtcac tttatttcat 2820

tcgggcccca cctgcagctc cctcaaagag gcagttgccc agcctctttc ccttccagtt 2880

tattccagag ctgccagtgg ggcctgaggc tccttagggt tttctctcta tttcccctt 2940

tcttcctcat tccctcgtct ttcccaaagg catcacgagt cagtcgcctt tcagcaggca 3000

gccttggcgg tttatcgccc tggcaggcag gggccctgca gctctcatgc tgcccctgcc 3060

ttggggtcag gttgacagga ggttggaggg aaagccttaa gctgcaggat tctcaccagc 3120

tgtgtccggc ccagttttgg ggtctgacct caatttcaat tttgtctgta cttgaacatt 3180

atgaagatgg gggcctcttt cagtgaattt gtgaacagca gaattgaccg acagctttcc 3240

agtacccatg gggctaggtc attaaggcca catccacagt ctcccccacc cttgttccag 3300

ttgttagtta ctacctcctc tcctgacaat actgtatgtc gtcgagctcc ccccaggtct 3360

acccctcccg gccctgcctg ctggtgggct tgtcatagcc agtgggattg ccggtcttga 3420

cagctcagtg agctggagat acttggtcac agccaggcgc tagcacagct cccttctgtt 3480

gatgctgtat tcccatatca aaaggcacag gggacaccca gaaacgccac atccccccaat 3540

ccatcagtgc caaactagcc aacggcccca gcttctcagc tcgctggatg gcggaagctg 3600

ctactcgtga gcgccagtgc gggtgcagac aatcttctgt tgggtggcat cattccaggc 3660

ccgaagcatg aacagtgcac ctgggacagg gagcagcccc aaattgtcac ctgcttctct 3720

gcccagcttt tcattgctgt gacagtgatg gcgaaagagg gtaataacca gacacaaact 3780

gccaagttgg gtggagaaag gagtttcttt agctgacaga atctctgaat tttaaatcac 3840

ttagtaagcg gctcaagccc aggagggagc agagggatac gagcggagtc ccctgcgcgg 3900

gaccatctgg aattggttta gcccaagtgg agcctgacag ccagaactct gtgtcccccg 3960

tctaaccaca gctccttttc cagagcattc cagtcaggct ctctgggctg actgggccag 4020

gggaggttac aggtaccagt tctttaagaa gatctttggg catatacatt tttagcctgt 4080

gtcattgccc caaatggatt cctgtttcaa gttcacacct gcagattcta ggacctgtgt 4140

cctagacttc agggagtcag ctgtttctag agttcctacc atggagtggg tctggaggac 4200

ctgcccggtg ggggggcaga gccctgctcc ctccgggtct tcctactctt ctctctgctc 4260

tgacgggatt tgttgattct ctccattttg gtgtctttct cttttagata ttgtatcaat 4320

ctttagaaaa ggcatagtct acttgttata aatcgttagg atactgcctc ccccagggtc 4380

taaaattaca tattagaggg gaaaagctga acactgaagt cagttctcaa caatttagaa 4440

ggaaaaccta gaaaacattt ggcagaaaat tacatttcga tgtttttgaa tgaatacaag 4500

caagctttta caacagtgct gatctaaaaa tacttagcac ttggcctgag atgcctggtg 4560

agcattacag gcaaggggaa tctggaggta gccgacctga ggacatggct tctgaacctg 4620

tcttttggga gtggtatgga aggtggagcg ttcaccagtg acctggaagg cccagcacca 4680

ccctccttcc cactcttctc atcttgacag agcctgcccc agcgctgacg tgtcaggaaa 4740

acacccaggg aactaggaag gcacttctgc ctgaggggca gcctgccttg cccactcctg 4800

ctctgctcgc ctcggatcag ctgagccttc tgagctggcc tctcactgcc tccccaaggc 4860

cccctgcctg ccctgtcagg aggcagaagg aagcaggtgt gagggcagtg caaggaggga 4920

gcacaacccc cagctcccgc tccgggctcc gacttgtgca caggcagagc ccagaccctg 4980

gaggaaatcc tacctttgaa ttcaagaaca tttggggaat ttggaaatct ctttgccccc 5040

aaacccccat tctgtcctac ctttaatcag gtcctgctca gcagtgagag cagatgaggt 5100

gaaaaggcca agaggtttgg ctcctgccca ctgatagccc ctctccccgc agtgtttgtg 5160

tgtcaagtgg caaagctgtt cttcctggtg accctgatta tatccagtaa cacatagact 5220

gtgcgcatag gcctgctttg tctcctctat cctgggcttt tgttttgctt tttagttttg 5280

cttttagttt ttctgtccct tttatttaac gcaccgacta gacacacaaa gcagttgaat 5340

ttttatatat atatctgtat attgcacaat tataaactca ttttgcttgt ggctccacac 5400

acacaaaaaa agacctgtta aaattatacc tgttgcttaa ttacaatatt tctgataacc 5460

atagcatagg acaagggaaa ataaaaaaag aaaaaaaaga aaaaaaaacg acaaatctgt 5520

ctgctggtca cttcttctgt ccaagcagat tcgtggtctt ttcctcgctt ctttcaaggg 5580

ctttcctgtg ccaggtgaag gaggctccag gcagcaccca ggttttgcac tcttgtttct 5640

cccgtgcttg tgaaagaggt cccaaggttc tgggtgcagg agcgctccct tgacctgctg 5700

aagtccggaa cgtagtcggc acagcctggt cgccttccac ctctgggagc tggagtccac 5760

tggggtggcc tgactccccc agtccccttc ccgtgacctg gtcagggtga gcccatgtgg 5820

agtcagcctc gcaggcctcc ctgccagtag ggtccgagtg tgtttcatcc ttcccactct 5880

gtcgagcctg ggggctggag cggagacggg aggcctggcc tgtctcggaa cctgtgagct 5940

gcaccaggta gaacgccagg gaccccagaa tcatgtgcgt cagtccaagg ggtcccctcc 6000

aggagtagtg aagactccag aaatgtccct ttcttctccc ccatcctacg agtaattgca 6060

tttgcttttg taattcttaa tgagcaatat ctgctagaga gtttagctgt aacagttctt 6120

tttgatcatc ttttttaat aattagaaac accaaaaaaa tccagaaact tgttcttcca 6180

aagcagagag cattataatc accagggcca aaagcttccc tccctgctgt cattgcttct 6240

tctgaggcct gaatccaaaa gaaaaacagc cataggccct ttcagtggcc gggctacccg 6300

tgagcccttc ggaggaccag ggctggggca gcctctgggc ccacatccgg ggccagctcc 6360

ggcgtgtgtt cagtgttagc agtgggtcat gatgctcttt cccacccagc ctgggatagg 6420

ggcagaggag gcgaggaggc cgttgccgct gatgtttggc cgtgaacagg tgggtgtctg 6480

cgtgcgtcca cgtgcgtgtt ttctgactga catgaaatcg acgcccgagt tagcctcacc 6540

cggtgacctc tagccctgcc cggatggagc ggggcccacc cggttcagtg tttctgggga 6600

gctggacagt ggagtgcaaa aggcttgcag aacttgaagc ctgctccttc ccttgctacc 6660

acggcctcct ttccgtttga tttgtcactg cttcaatcaa taacagccgc tccagagtca 6720

gtagtcaatg aatatatgac caaatatcac caggactgtt actcaatgtg tgccgagccc 6780

ttgcccatgc tgggctcccg tgtatctgga cactgtaacg tgtgctgtgt ttgctcccct 6840

tccccttcct tctttgccct ttacttgtct ttctggggtt tttctgtttg ggtttggttt 6900

ggtttttatt tctccttttg tgttccaaac atgaggttct ctctactggt cctcttaact 6960

gtggtgttga ggcttatatt tgtgtaattt ttggtgggtg aaaggaattt tgctaagtaa 7020

atctcttctg tgtttgaact gaagtctgta ttgtaactat gtttaaagta attgttccag 7080

agacaaatat ttctagacac tttttcttta caaacaaaag cattcggagg gaggggggatg 7140

gtgactgaga tgagagggga gagctgaaca gatgacccct gcccagatca gccagaagcc 7200

acccaaagca gtggagccca ggagtcccac tccaagccag caagccgaat agctgatgtg 7260

ttgccacttt ccaagtcact gcaaaaccag gttttgttcc gcccagtgga ttcttgtttt 7320

gcttcccctc cccccgagat tattaccacc atcccgtgct tttaaggaaa ggcaagattg 7380

atgtttcctt gaggggagcc aggaggggat gtgtgtgtgc agagctgaag agctggggag 7440

aatggggctg ggcccaccca agcaggaggc tgggacgctc tgctgtgggc acaggtcagg 7500

ctaatgttgg cagatgcagc tcttcctgga caggccaggt ggtgggcatt ctctctccaa 7560

ggtgtgcccc gtgggcatta ctgtttaaga cacttccgtc acatcccacc ccatcctcca 7620

gggctcaaca ctgtgacatc tctattcccc accctccccct tcccagggca ataaaatgac 7680

catggagggg gcttgcactc tcttggctgt cacccgatcg ccagcaaaac ttagatgtga 7740

gaaaacccct tcccattcca tggcgaaaac atctccttag aaaagccatt accctcatta 7800

ggcatggttt tgggctccca aaacacctga cagcccctcc ctcctctgag aggcggagag 7860

tgctgactgt agtgaccatt gcatgccggg tgcagcatct ggaagagcta ggcagggtgt 7920

ctgccccctc ctgagttgaa gtcatgctcc cctgtgccag cccagaggcc gagagctatg 7980

gacagcattg ccagtaacac aggccaccct gtgcagaagg gagctggctc cagcctggaa 8040

acctgtctga ggttgggaga ggtgcacttg gggcacaggg agaggccggg acacacttag 8100

ctggagatgt ctctaaaagc cctgtatcgt attcaccttc agtttttgtg ttttgggaca 8160

attactttag aaaataagta ggtcgtttta aaaacaaaaa ttattgattg ctttttttgta 8220

gtgttcagaa aaaaggttct ttgtgtatag ccaaatgact gaaagcactg atatatttaa 8280

aaacaaaagg caatttatta aggaaatttg taccatttca gtaaacctgt ctgaatgtac 8340

ctgtatacgt ttcaaaaaca ccccccccccc actgaatccc tgtaacctat ttattatata 8400

aagagtttgc cttataaatt ta 8422

<210> 2
<211> 8464
<212> DNA
<213> Murine

<400> 2
cttagagttt cgtggcttcg gggtgggagt agttggagca ttgggatgtt tttcttaccg 60

acaagcacag tcaggttgaa gacctaacca gggccagaag tagctttgca cttttctaaa 120

ctaggctcct tcaacaaggc ttgctgcaga tactactgac cagacaagct gttgaccagg 180

cactcccccc aacaatatcc tccctcttcc ccccccccac ccccgccccg tgtgctcgtt 240

agggcaattg aaaggacact cccatttttg gtgccattga tgccctgtcc ataatagctt 300

ccctgacttt tacaccaccc caactcccaa tctgaaggac tgggaggtgt gatgcaggag 360

aaactatggg actcttggga gaagactatg gagttggcca gtgattaagg cccactaatt 420

ccaactgtgg tagcacagat ctggctccac atcaacccaa tccaaaactg acaaggatat 480

tttgcaaaaa aagaaagtgg cacctgtctg atccagctct gacatggcta gaggtgagtc 540

ctaaactgat ggcttataaa ctagcctgag ccacagaaga gtatggccca gagtgaagtg 600

tcatcatctg ttcacaaggc atgctcccct agaagataat gctaaagagg tgccatggag 660

gcagcaggac aaagtacagg caggctaggt ggagtcaagc caggcctagt gccacagaac 720

aagagagcag tctgactagt aattaagagg gaagaaagga aaatattctt ccaattactt 780

tccagttctc ctttagggac agcttagaat tatttgcact attgagtctt catgttccca 840

cttcaaaaca aacagatgct ctgaaagcaa actggcttga aatggtgaca ctgtcccaca 900

agccaccaga catggcagtg ttcagaacta cctgtatctg tatatacctg cgcttgtttt 960

aaagtgggct cagcacatag gattcccaag aagctccgaa actctaagtg tttgctgcaa 1020

ttttataagg acttcctgat tgctttctct ctcgtccttc catttcttcc ttccttccat 1080

ttcatgcttt catttcttcc cctagcttct agttgtttct tctgttccag gcagctgcag 1140

tgctgaacca catggttacc taacagcagt cagctgcagc cctaggattc ttcctgccct 1200

ttaacttccc attgccagtg ccaggtatca tatttaacct tgagcaagag ctgggctctt 1260

ttgagccctc cctaacctct gtgaagaaga acaagaaggt aggaagctct tgctcttgct 1320

aagaaaaatg tcaaaaggct ttcagacctt aaacaatgag ccttttcacc ttttactcta 1380

gaaaagtgga ctagaaaatc tgggtcacat tgggtagctg aaggagatac agaggcccct 1440

atggcctgcc agagtcgttg catggcccaa caggggctcc atgcccacta cccttgaccc 1500

tactcagaaa tctaatgtca tacttagtgt gggcagggga cctgtcagga cagatgcaga 1560

cctaagcagg gagtgacacc agggcccttg gcccttcttc tgacaaacat acacatccca 1620

agtctttttc tagtggaatt cttaacctct tgctcactgg ggactgggaa gcatcagcac 1680

atcccatatt tcaaactctg ctccataagt acagtggtga attttataga cttgactttg 1740

ctgtggggtt ttaattggtc agttttaatt tgggatccca aagttttaac ctccattcag 1800

gaagtcctta tctagctgca tatcttcatc atattggtat atccttttct gtgtttacag 1860

agatgtctca tatctatcga aatctgtctg agaagtacct tatcaaagta gcaaatgaga 1920

cagcagtctt atgcttccag aaacacccac aggcacgtcc catgtgagct gctgccatga 1980

actgtcgagt gtgtattgtc ttgtgtattt tcgttaacgt tccccagctt ccttcctgcg 2040

gtgtaatcat ggaagagtga aacatcatag aaatcgtcta gcacttcctg gccagtcctt 2100

agtgatcagg aaccgtagtt gacagttcca attgatagct taagataaaa ccatgtttgt 2160

ctcttatgga atggttagaa ctaagtgaga gatcttgccc cattctgttt gccgaatcat 2220

agttggactt ttagtgtatt tgtatccatt tccttgtgct ataaaagcaa accctgcaac 2280

cagctttctg tcaggcagtc cttttgcctg ctctgctttt gatcctctta gtcttgcttc 2340

tggttcctcc ctggagaggg aggaggggtc agaagaggaa ttctggagga tccaggatat 2400

gtccttctga actcctgctt cttccagtga caaaaggccc ctactgcccc accccaacct 2460

gccccatgca ctcctctagg acacctttcc atacttttca caacacctag ccaggttgac 2520

accaagttgt ttattgtggt ctgcttggaa ttttacctgt taggcttact tagtccaatc 2580

aaatggactc caagttgggt atccctcatc tttggaagac aacctaggct gattagatat 2640
ttacttttgg gattgcagca ctttgggtgc cgtttttctt ttacttgggt tttatctgca 2700
gctccctcac caccaccacc acccccccact tacctgtatg tagaactgat ttcaaaactg 2760
caggtggtgg taactgcagc ttcttagggt tttcttcact tcttgcttct ttccccattc 2820
cctcatccac aaataagggc atcacaagtc agtctccttt aagcaggcag ctttggtggg 2880
gtttttcccc tggaagccag ggaccctgtc aggctgcctc tgccttgtgg tcaggttgac 2940
aggaggttgg agggaaaagc cttaagtcat gggattctca ccagctgtgt ctggctcaga 3000
cctggaatgt gacctttatt ttgttgtatt tgaacattgt aaagtgtggg tggtacctta 3060
aactgaatat gtgaagaatc cagaaactga ccaacagctt tcagatacct ggggctaggt 3120
cactaaggtc acatccagtc ttccctaccc tgttctagtt gttagctact acctctccca 3180
gatagattgc tgtatatcct ccaactatga tcatcctggc ccaagcttgc ctgttcttga 3240
gtctgtctta accagtggaa ctgctgccct tggtgtgcag tgagttgagg actcttggtc 3300
acagccaggc tctagtagta cagctccttt ctgctggtgc tgtatttcca tatcaaaagg 3360
cacaggggag atctagaaat gccatctccc ccagtccatc agtgccaaac aagcccatga 3420
tcccagcatg ggtacagaca actctgttca gtgctatcac aacagactag aggccatgaa 3480
cattggacgt gggaaccaga gcaacccgaa ttgctgctgc tttattcagc tttccgttgc 3540
tctgacaatg ataaaacaag gcagtaactt aaaacagact gccaggtttg gcagagaaag 3600
gaaattcctt agctgacagc acctctggat tttaaatagg ttgtaataag tggctcaaac 3660
ccatccagga aaaagcaaaa gggttagaac tgaccagatg agaccagcct gatttcatgc 3720
agcccaaatg gagtccagct gtctgaactc tgcagcactt ctctactaca gtctcctaga 3780
gcattccagc caggctcttc aggctgagga gacatcacag gtgccagttc ttcaagaaga 3840
cttttgtgca tcagttcata gcctatatct ttgcccaaga ttgtagattc aggttaacac 3900
tacagattct agggcagatg actgagactc agaaaaaaag cccctgtgga ctgtggtata 3960
gcgaagtaca aaaactgaag ggggctaggg cagatgccgc atgcctcatg ccagagccaa 4020
gccctctgct ccatccacat ccttttctgg ctccttcttc ctgctctctg cttcagtgaa 4080
ccagccccac tctgaagaga tttgttgatt ctctccattt ttatgtcttt ctcttttagg 4140
tactatatag aaaaggctta gtctaattgt tataaattgc tagaatactg cctcccccag 4200
ggtctaaaaa tatatgctaa aggggaaaac ttgaacactg aaaccagttc tgaacaattt 4260
agaaggaaaa ccttgaaaac atttaacaaa aaattatatt ttaatgttta tgaataagag 4320

gaggcttttg aaaaaatgtt gatctataaa tacttacttt aggcctgagg tgtctaatga 4380

gtgaactgag caatgggaac tcaaggctga agcctcctgc atcagaggag gtagaaccag 4440

gagcctcttg agatttgagg tgttttagca ttggaaagcc actctttggg tagctggccc 4500

cagaaactac ttctgacctt gtcatttgga atggaggtta gtggtctgcc agatgccaaa 4560

gctgcatgag accagctctt ggtttatcaa tttgaacact cagtaaccta gaaggcccag 4620

cacaaagtgt ctgctctctt cttaactgag cctgccccag cactactgca caaattaggg 4680

agggtctact tcctacagag catccctccc tgggcccccc cccatccttt gtactctacc 4740

tacctgacct tcaggatctt ggcacatacg aaatggctgt gtagcaagca ctttggcatg 4800

ccctcctaaa cttaccccag agcctctccc tgcctcctta agccagtctg cctgtcttct 4860

ggggaggtgt tagagcccat agaatggaga ggagaaagaa aagaggaaga ggcaggcagg 4920

tagtaaaaag gctctgggag gaaagacagc ctcctaggct ttgcacaagc aggactcagc 4980

cccttgtggg aactaagtgc catcttggag tttaagaaca tttggacaag ttgcaaatga 5040

cctttgctcc ttgctcctct caccttttat ggggccctgc ttagcactga aagcaaatgc 5100

gctgaaaagg caaagaggtt tggctcctgc ccactgatag tcctttccct gcagtgtttg 5160

tgtgtcaagt ggcaaagctg ttcttcctgg tgactctgat tagatccagt aacttaagag 5220

atttgtatgc ataggtctgc tttgactctt ctattctggg cttttgattt gtttttcagt 5280

tttgctttta gttttcctat ttttatttta tgcaccaact agacacacaa agcagttgaa 5340

tttatatata tatatatata tatatatctg tatatttcac aattataaac tcattttgct 5400

tgtgacgcca cacacacaca aaaagaaaaa ccttttaaaa ttatacctgt tgcttaatta 5460

caatatttct gataaccata gagtaggaca agggaaaaaa tttaaaaaaa aaaaaaaaaa 5520

aagaaaaaac acatctgtct gctggtcact tcttcaatcc aagcagatct gtgatctttc 5580

ctcgcgtctt tcaaagactt ccctgtgcta agtgaaggaa gctccaggct gcacccaggt 5640

tttgtgcttt gtttctcctc tgttgtgaaa ggggccccaa gattctgggt acaggacagt 5700

tcatttcagc atggggtcag gagacaagag cactcccttt acatgctgac gtacagaact 5760

tagtgggaat agcctagtcc ccacctctag ggatggggag ctagcatgca tgggggtgac 5820

ccaactccct ccacctttcc ctggccagga agagcctgtg tacagtaagt ctgacaagct 5880

ttccccagtt agcagggctc agagcattta aaaaccctcc aaactttgct gagtctaggg 5940

actagagaga agatagaaga tttggtctat ctccaaggtg tgtaagctgt accaggtaga 6000

atgccaggga ccccagaacc acatccaaca gcccaatggg tctcctccag aaagtagtga 6060

agactccaga aacatccctt tctcttctcc ctgctcccat gagtaactgc atttgctttt 6120
gtaatcctta atgagcatta tctgctaaaa aaaaaaaatt agctgtaaca gttctttttg 6180
caaaaggatc attcttaaat aattaaaaac acccccccccc caaaaaaaag tccagaacct 6240
tgttcttcca aagcagagag cattataatc agggccaaaa tctgtcccac acctctaccc 6300
catctcctca tgattgctgc ttctaaggcc agaatacagc aaagatattt gtaggccctt 6360
tgggtgactg ggctaccctt ggagctcttg gaagatgggc tggggaagcc tctgagaccc 6420
tatcctaggg ccttgctcta gggagtaatc agtattagta gagtgtcaca acattattcc 6480
ccagccggca tgagatgggg gcagaagaag ccaaagggtt gtctccactg ctacttactt 6540
ggccactgac aggtaggtga ccatgtatgt ccatatgcat gttttatggc tgatgtgaga 6600
tcagcaccca agttagcttc acctggtgac ctctaaccct gcctggatgg agcaggccac 6660
ctggttcaat gtttctgggc agctggacaa tggagtgcaa aaggcttaca gaacttgaag 6720
ccttttcctt actttgctag cacggcctcc ttttccattt gatttgtcac tgcttcagtc 6780
aataacagcc gctccagagt cagtagttga tgaatatatg accaaatatc accaggactg 6840
ttactcaacg tgtgccgagc cctttccttg tgctgggctc cctgtgtacc tggacactgt 6900
aatgtgtgct gtgtttgctc tccttcctct tccttccttg ccctttcctt gtctttctgg 6960
ggtttttctg ttgggtttgg tttggtttta tttttccttt tgtgttccaa acatgaggtt 7020
ttctctactg gtcctcttta actgtggtgt tgaggcttct atttgtgtaa tttttggtgg 7080
gtgaaaggaa ctttgctaag taaatctctt ctgtgtttga aatgaagtct gtattgtaac 7140
tatgtttaaa gtaattgttc cagagacaaa tgcttctagg tacattttca ttacaaacaa 7200
agcatttgaa gggagggaag tggtgaataa gacaagaggg gcaatctgaa ttgatccctg 7260
cccagatcag ccagaagcta ccaaaagtta agcactggtt ttccattcca agtcaagaga 7320
ctgaagctga tgttttgcca ttttcaaagt caaagcaaaa ccagcttttc cacccaatgg 7380
attctttgct tctccttccc agattattac tactgctgta ataatctagg agtgccagga 7440
gggaaaggag tattaacaca gagctgtgct cactgagtat ggaaaggctt ggtctgagtt 7500
ttcaggagga tgacccactg tggacatggg gagaagacag aagataaatt agccgctccc 7560
tgcctaagat acctcttaat agataagtca aggccatgga cattattgtc tacaaggcat 7620
gtttcaaaga catgaccagt caggacactt ctgtcatact ccatgttgcc ccctagtaca 7680
cagtactaat ctgatatctc tgttcccgcc atgcctgggg gataaaatga tagcagagac 7740
tcctttcctt caatgtgatc taattcccaa caaaatctgg gcctgagata ccacctgttt 7800

ctatggcaaa catcctcagt aaagtgttat tctcattgca gattgttcca gcctaatgta 7860

agaggaacag agcagtgttc ccttggagcc tcatgtggac agttctacct gtagtgacca 7920

gttggctata gtagttatta gctggaacaa ccagacaggg tacatgcccc ctccaaaatc 7980

catgttgtac tcccctctgc cagccagggg gggtgagatc tgtagaatag tgcagccagt 8040

gacaagccac cttgtgtttg tcaccagctc aaaaactcat ctaaggttgg gagcaggcag 8100

acaaggcaga gagaaagatc caggacagac ctagctgggc tggaggggtc ttgaaaagcc 8160

ctctgtcgta ttcaccttca gtttttgtgc tttgggacaa ttactttaga aaataagtag 8220

gtcgttttaa aaacaaaata ttgattgctt ttttgtagtg ttcaaaacaa aaggttcttt 8280

gtgtatagcc aaatgactga aagcactgat atatttaaaa acaaaaggca atttattaag 8340

gaaatttgta ccatttcagt aaacctgtct gaatgtacct gtatacgttt caaaaacaca 8400

ccccactgaa cccctgtaac ctatttatta tataaagagt ttgccttata aatttacata 8460

aaaa 8464

<210> 3
<211> 803
<212> DNA
<213> Hamster

<400> 3
ttgctgcaga tactactgac cagacaagct gttgaccagg caccccccca atactccccc 60

aatgtgctca ttagagatag cagttgagag gacactccca tttttggtgc cctgtccata 120

gcttccctga ctcttccacc accccaactc ccaatctgag ggaccgggag gtgcgaggca 180

ggaaaaatat tggattcttt agagaagact agaggtgacc agtgactgtg gcccagtaat 240

tagaactgtg gtggcacaag tctggcccca catccaccca atccaaaact gataaggata 300

ttttgaaaaa caggaaagca gtacctgtct gatccagctc tggtataggt aggagtgagt 360

cctgaactgc tggattacag actggcttga gccacagaag atgatggacc agagtaaagt 420

atcatcacct gctcacaagg catgcttcac tagagaataa ttctaaagag gtgccatgga 480

ggcagcagga caaggcacaa gcagtctggg tgggggtcaa gccagaccta gtgccacaga 540

acaagagagc aatctgtgac tagtagttag ggactttgtg gatgggacaa ggggcatggg 600

ggaagaaatg aaaatattct tccaattact ttccagttct cctttaggga cagcttagaa 660

ttatttgcac tattgagtct tcatgttccc acttaaaaac aaacagatgc tctgaaagca 720

aactggcttg aaatggtgac actttgtccc acaagccacc aaatgtggca gtgtttagaa 780

ctacctggat ctgtatatac ctg 803

<210> 4
<211> 790
<212> DNA
<213> Kangaroo

<400> 4
ttgctgcata tactactgac cagacaagct gtttatcagg ctttttaggg tacaccagca 60

cctgccctcc attcatccct gttgggagag ggatggtgta ctggttgtca ctagagacct 120

aacagagtag ggttagtggg agcttacatt ttcagtgcca ttaacattct agtccaaggt 180

cttaaattat tatgttgagg ggtttttttt cccctgaggg ggccgggggg tgggggggagg 240

gttgattaga ttccttagga aagagggttg agacagacag cagagcactg agcagttggc 300

actaaaggag accttgacta ggggccaggt ggcatcatct aatcccaagg ggctccaagt 360

gagtattagg gtgggggaag acattataga aggaatagaa acaggatagc tcagcctaaa 420

gaagagcggt taaaacccta cccaccagga gttgacttga aagaggcccc tatggaggaa 480

tccccaacca ccaaaagcaa tcttgagctg cagctgcttc atttagtgga ccttgtgtat 540

atctgggtgt gtatgcacat agatagacag tgagaaagaa aactgttctt ccagttcttt 600

tccagtgcta ctagcttagg gacaggttag aactgtctgc acaattgtgt gatcattccc 660

attcccactt caaaacaaac tgactgagat gttcaacaga aaactggctt caatgggtaa 720

catgcccttg ccacttactt aagacactgg tgtgatgggg ttttgaactc cctatatttg 780

taggtatctg 790

<210> 5
<211> 841
<212> DNA
<213> Macaca

<400> 5
ttgctgcaga tactactgac cagacaagct gttgaccagg cacctcccct cccgcccaaa 60

cctttccccc atgtggtcgt tagagacaga cgagttgaga ggacactccc gttttcggtg 120

ccatcagtgc cccgtctacc actcccccag ctcccccact ctcccccact cccaaccacg 180

ttgggacagg gaggtgtgag gcaggagaga cagttggatt ctttagagat ggatgtgacc 240

agtggctatg gcccgtgcga tcccacccgt ggcggctcaa atctggcccc accccagccc 300

caatccaaaa ctggcaagga cgcttcacag gacaggaaag tggcacctgt ctgttccggc 360

atggctagga gggagttgtc ccttgaacta ctgggtgtag actggcctaa atcacaggag 420

aggatggccc agggtgaggt ggcatggtcc attctcaagg gacgtcctcc agttggtggc 480

actagagagg ccatggaggc agtaggacaa ggcacaggca ggctggccca gggtcaggcc 540

gggccgaaca cagcggggtg agagggattc ctcgtctcag agcagtctgt gaccggtagt 600

tagggactta gtggacaggg aaggggcaaa gggggaggag aagaaaatgt tcttccagtt 660

actttccaat tctactcctt tagggacagc ttagaattat ttgcactatt gagtcttcat 720

gttcccactt caaaacaaac agatgctctg agagcaaact ggcttgaatt ggtgacgttt 780

agtccctcag gccaccagat gtgatggtgt tgagaactac ctggatatgt atatatacct 840

g 841

<210> 6
<211> 846
<212> DNA
<213> Orangutan

<400> 6
ttgctgcaga tactactgac cagacaagct gttgaccagg cacctcccct cccgcccaaa 60

cctttccccc atgtggtcgt tagagacaga gcagttgaga ggacactccc gttttcggtg 120

ccatcagtgc cccgtctgca gctcccccag ctccccccac ctcccccact cccaaccacg 180

ttgggacagg gaggtgtgag gcaggagaga cagttggatt ctttcgagaa gatggatatg 240

accagtggcc atggcctgtg cgatcccacc cgtggcggct caagtctggc cccacaccag 300

ccccaatcca aaactggcaa ggacgcttca caggacagga aagtggcacc tgtctgctcc 360

agctctggca tggctaggag ggagtcgtcc cttgaactac tgggtgtaga ctggcctgaa 420

ccacaggaga ggatggccca gggtgaggtg gcatggtcca ttctcaaggg acgtcctcca 480

acgggtggcg ctagaaaggc catggaggca gtaggacaag gcgcaggcag gctggcccgg 540

ggtcaggccg ggcagggcac agcggggtga gagggattcc taatcactca gagcagtgtg 600

tgactggtag ttagggactc agtggacagg ggaggggcga gggggcagga gaagaaaatg 660

ttcttccagt tactttccaa ttctccttta gggacagctt agaattattt gcactattga 720

gtcttcatgt tcccacttca aaacaaacga tgctctgaga gcaaactggc ttgaattggt 780

gacatttagt ccctcaagcc accagatgtg agtgttgaga actacctgga tttgtatata 840

tacctg 846

<210> 7
<211> 813
<212> DNA
<213> Rat

<400> 7
ttgctgcaga tactactgac cagacaagct gttgaccagg cactccccac aacaacaacc 60

ccctccctcc tcaccccacc cctatcccct gtgtgctcat tagagagggc aattgagagg 120

acactcccat ttttggtgcc actgatgccc tgtccatagc ttccctgact tttacaccac 180

cccaactccc aatctgaggg actgggaggt gtgacgcagg agaaactata taggactctt 240

gggagaagac tatagagttg gcaagtgatt gcgccccagt aattccaact gtggtagcac 300

aagtctggct ccacaccaac ccaatccaaa actgacaagg acattttgca aaaaatgaaa 360

gtggcatttg tctgatccag ctctggcatg gctagagatg agtcttaaac tgttggctta 420

taaactggcc tgagcaacag aagaggatgg cccagagtaa agtgtcatca tctgttcaca 480

aggcatgctc ccctagaagt tcatgctaaa gaagtgccat ggaggcagca ggacaaagta 540

caggctaggt ggagtcaagc caggcctagt gccacagagc aagagagcag tctctgacta 600

gtagttaagg gggaagaaag aaaaatattc ttccaattgc tttccagttc tcctttaggg 660

acagcttaga attatttgca ctattgagtc ttcatgttcc cacttcaaaa caaatagatg 720

ctctgaaagc aaactggctt gaaatggtga cactgtccca caagccacca gacaatggca 780

gtgttcagaa ctacctgtat atgtatatac ctg 813

<210> 8
<211> 842
<212> DNA
<213> Chimpanzee

<400> 8
ttgctgcaga tactactgac cagacaagct gttgaccagg cacctcccct cccgcccaaa 60

cctttccccc atgtggtcgt tagagacaga gcgacagagc agttgagagg acactcccgt 120

tttcggtgcc atcagtgccc cgtctacagc tcccccagct ccccccacct cccccactcc 180

caaccacgtt gggacaggga ggtgtgaggc aggagagaca gttggattct ttagagaaga 240

tggatatgac cagtggctat ggcctgtgtg atcccacccg tggtggctca agtctggccc 300

cacaccagcc ccaatccaaa actggcaagg acgcttcaca ggacaggaaa gtggcacctg 360

tctgctccag ctctggcatg gctaggaggg gggagtccct tgaactactg ggtgtagact 420

ggcctgaacc acaggagagg atggcccagg gtgaggtggc gtggtccatt ctcaagggac 480

gtcctccaac gggtggcgct agaggccatg gaggcagtag gacaaggcgc aggcaggctg 540

gcccggggtc aggccgggca gagcacagcg gggtgagagg gattcctaat cactcagagc 600

agtctgtgac ttagtggaca ggggaggggg caaaggggga ggagaagaaa atgttcttcc 660

agttactttc caattctcct ttagggacag cttagaatta tttgcactat tgagtcttca 720

tgttcccact tcaaaacaaa cagatgctct gagagcaaac tggcttgaat tggtgacatt 780

tagtccctca agccaccaga tgtgacagtg ttgagaacta cctggatttg tatatatacc 840

tg 842